Amendments to the Drawings:

The attached sheet of drawings includes changes to Fig. 3. This sheet, which includes Fig. 3 replaces the original sheet including Fig. 3.

Attachment: Replacement Sheet

REMARKS/ARGUMENTS

Claims 1-20 were pending. Claims 1-3, 5-10, and 12-18 have been amended. Support for the amendments can be found in the specification as filed. Claims 19 and 20 have been canceled without prejudice and without disclaimer. No claims have been added.

Claims 1, 6, 7, 14, 17, and 18 were rejected under 35 U.S.C. 102(e) as being anticipated by Szabo et al. (US Patent No. 6,768,486, hereinafter "Szabo"). Claims 2, 3, and 5 were rejected under 35 U.S.C. 103(a) as being unpatentable over Szabo in view of Buxton et al. (US Patent No. 5,970,252, hereinafter "Buxton"). Claim 4 was rejected under 35. U.S.C. 103(a) as being unpatentable over Szabo in view of Drucker et al. (US Patent No. 6,049,805, hereinafter "Drucker"). Claims 8-13 were rejected under 35 U.S.C. 103(a) as being unpatentable over Szabo in view of Kross et al. (US Patent No. 6,285,369, hereinafter "Kross"). Claims 15 and 16 were rejected under 35 U.S.C. 103(a) as being unpatentable over Szabo in view of Buxton. Claims 19 and 20 were rejected under 35 U.S.C. 103(a) as being unpatentable over Szabo in view of Buxton.

In light of the amendments to the claims and the following remarks, the Examiner's rejections are traversed or moot.

The Claimed Invention

Embodiments of the present invention relate to systems, codes, and methods for building computer graphics models that incorporate reusable components. Computer graphics models are complex and unique, but often have many features in common. Thus, it is desirable to build shared components, such as hand, face, or body objects ("rigs"), that can be referenced in many disparate model files. Furthermore, it is desirable for fixes or updates to a shared rig to automatically propagate to all models referencing the rig. Embodiments of the present invention enable these features, among others.

One aspect of the present invention is the definition of public and private attributes for a shared component. Public attributes are attributes that can be overridden by users that reference the shared component. For example, consider a first modeler that creates a hand rig and specifies that the width of the palm is public. A second modeler that references the hand

rig in a lower-arm rig would be able to change the palm width of the referenced hand. In contrast, private attributes cannot be changed by users that reference the shared component. Thus, these attributes can be considered constant because they can only be changed by redefining the original shared component. In the example above, assume the hand modeler specifies that the number of fingers is private. Accordingly, the lower-arm modeler would not be able to change the number of fingers on the referenced hand model. The number of fingers could only be changed by editing the original model definition of the hand rig.

Objection to Claim 13

Claim 13 was objected to for informalities. Claim 13 has been amended accordingly and the claim objection is believed to be overcome.

Section 102 Rejections of Claims 1, 6, 7, 14, 17, and 18

Claims 1, 6, 7, 14, 17, and 18 were rejected under 35 U.S.C. 102(e) as being anticipated by Szabo.

Amended claim 1 recites, in part, "determining a reference for a second object, wherein the second object includes a first plurality of public attributes and a second plurality of private attributes;... [and] determining a modified value for a public attribute from the first plurality of public attributes for the second object;... wherein values for the second plurality of private attributes cannot be modified by users of the first file."

Szabo fails to teach each and every limitation of amended claim 1, including "determining a reference for a second object, wherein the second object includes a first plurality of public attributes and a second plurality of private attributes;... [and] determining a modified value for a public attribute from the first plurality of public attributes for the second object;... wherein values for the second plurality of private attributes cannot be modified by users of the first file" as recited above. For example, the Examiner noted in the Office Action that "Szabo fails to teach the plurality of attributes for the second object... include private and public attributes..." P. 20 of the Office Action. As such, the 102 rejection of claim 1 should be withdrawn.

Furthermore, none of the other cited prior art references remedy the deficiencies of Szabo. The Examiner asserted (with respect to previously presented claims 19 and 20) that

Buxton teaches the concept of public and private attributes, and therefore embodiments of the present invention incorporating public/private attributes are obvious over Szabo in view of Buxton. However, this argument is traversed for two reasons.

First, the Examiner failed to provide any evidence in either Szabo or Buxton suggesting a motivation to combine the two references. Szabo is directed to the art of modeling computer graphics models. Buxton is directed to the art of object-oriented programming. These dissimilar arts provide no inherent motivation to combine. Additionally, Szabo makes absolutely no reference to a need for protecting certain attributes of a geometry model from being updated. Thus, one of ordinary skill in the art would have no reason to incorporate the public/private paradigm described in Buxton into the modeling system of Szabo.

Second, Buxton fails to teach or suggest "wherein values for the second plurality of private attributes cannot be modified by users of the first file" as recited in amended claim 1. Buxton describes the use of public/private definitions in object-oriented programming, and states that "access to the private variables by other programs can be controlled by defining public functions for an object which access the object's private ones." Col. 5, lines 54-56. That is, users of a first object that inherits from a second object can modify the private variables defined in second object using a public function. In contrast, the claimed embodiments recite that a modeler that references a first model in a second model cannot override a private attribute of the first model. As such, Buxton fails to teach or suggest "values for the second plurality of private attributes cannot be modified by users of the first file" as recited in amended claim 1.

For at least the foregoing reasons, claim 1 is allowable over the prior art.

Claim 6 and 7 depend from claim 1 and are thus allowable for substantially the same reasons as claim 1, as well as for the additional limitations they recite.

Claim 14 is a computer program product version of claim 1 and is thus allowable for substantially the same reasons as claim 1, as well as for the additional limitations it recites.

Claims 17 and 18 depend from claim 14 and are thus allowable for substantially the same reasons as claim 14, as well as for the additional limitations they recite.

Section 103 Rejections of Claims 2, 3, and 5

Claims 2, 3, and 5 were rejected under 35 U.S.C. 103(a) as being unpatentable over Szabo in view of Buxton.

Claims 2, 3, and 5 depend from claim 1. Buxton fails to remedy the deficiencies of Szabo discussed with respect to claim 1 above. Thus, claims 2, 3, and 5 are allowable for substantially the same reasons as claim 1, as well as for the additional limitations they recite.

Section 103 Rejection of Claim 4

Claim 4 was rejected under 35. U.S.C. 103(a) as being unpatentable over Szabo in view of Drucker.

Claim 4 depends from claim 1. Drucker fails to remedy the deficiencies of Szabo discussed with respect to claim 1 above. Thus, claim 4 is allowable for substantially the same reasons as claim 1.

Drucker also fails to teach or suggest "geometrically coupling the first object to the second object in the object environment" as recited in claim 4. Drucker is directed to event notification methods in a virtual world environment. In describing these notification methods, Drucker makes a passing reference to associating geometry models to objects in the virtual world environment. Col. 10, lines 6-12. This reference is completely unrelated to the concept of coupling geometric objects in an object modeling environment as recited in the claimed embodiments. Thus, Szabo and Drucker, either singly or in combination, fail to teach or suggest all of the limitations of claim 4.

For at least these reasons, claim 4 is allowable over the prior art.

Section 103 Rejections of Claims 8-13

Claims 8-13 were rejected under 35 U.S.C. 103(a) as being unpatentable over Szabo in view of Kross.

Claim 8 is a computer system version of claim 1. Kross fails to remedy the deficiencies of Szabo discussed with respect to claim 1 above. Thus, claim 8 is allowable for substantially the same reasons as claim 1, as well as for the additional limitations it recites.

Claims 9-13 depend from claim 8 and are thus allowable for substantially the same reasons as claim 8, as well as for the additional limitations they recite.

Section 103 Rejections of Claims 15 and 16

Claims 15 and 16 were rejected under 35 U.S.C. 103(a) as being unpatentable over Szabo in view of Buxton.

Claims 15 and 16 depend from claim 14 and are thus allowable for substantially the same reasons as claim 14, as well as for the additional limitations they recite.

Section 103 Rejections of Claims 19 and 20

Claims 19 and 20 were rejected under 35 U.S.C. 103(a) as being unpatentable over Szabo in view of Buxton.

Claims 19 and 20 have been canceled without prejudice and without disclaimer. Thus, the Examiner's rejections are moot.

CONCLUSION

In view of the foregoing, Applicants believe all claims now pending in this Application are in condition for allowance. The issuance of a formal Notice of Allowance at an early date is respectfully requested.

If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at 650-326-2400.

Respectfully submitted,

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Attachments
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